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Cigarette Smoking Prevalence Among Adults Working in the Health Care and Social Assistance Sector, 2008 to 2012

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Abstract

Objective—The primary objective of this study was to estimate current smoking among workers in the health care and social assistance sector.

Methods—We analyzed the 2008 to 2012 National Health Interview Survey data for adults (age 18 years or more) working in health care and social assistance sector who reported current cigarette smoking.

Results—Of the approximately 18.9 million health care and social assistance workers, 16.0% were current cigarette smokers. Smoking prevalence was highest in women (16.9%) and among workers: age 25 to 44 years (17.7%); with a high school education or less (24.4%); with income less than $35,000 (19.5%); with no health insurance (28.5%); in the nursing and residential care facilities (26.9%) industry; and in the material recording, scheduling, dispatching, and distributing (34.7%) occupations.

Conclusions—These findings suggest that specific group of workers in the health care and social assistance sector might particularly benefit from cessation programs and incentives to quit smoking.

Cigarette smoking is the single most preventable cause of morbidity and mortality and accounts for one in five deaths in the United States.[1] During 2009 to 2012, the annual estimated economic loss attributed to smoking includes $130 billion in direct medical expenses, $151 billion in lost productivity, and an additional $5.6 billion (in 2006) for lost productivity due to secondhand smoke exposure.[1]

In 2012, there were 16.9 million workers who provided health care and social assistance.[2] According to the Bureau of Labor Statistics by 2022, the overall employment in the health care and social assistance sector is projected to increase to an estimated 22 million; with the

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largest increase in health care support occupations (by 28%), and the health care practitioners and technical occupations (by 22%).[2]

Smoking prevalence among physicians has declined from 40% in the 1960s to less than 5% in 2007 and for registered nurses and licensed practical nurses from 32% in 1974 to 18% in 1991[3–6]; however, between 2003 and 2007, smoking prevalence among health care providers was practically unchanged and licensed practical nurses (21%) and respiratory therapists (19 %) had the highest smoking prevalences.[4] During 2004 to 2010, an estimated 24% of workers in health care support occupations were current smokers.[7] These estimated prevalences greatly exceed the Healthy People 2020 objective to reduce cigarette smoking to 12% or less.[8]

Health care providers can serve as role models in promoting healthy lifestyles[4,5]; however, providers' commitment to help individuals to quit smoking may be influenced by their own smoking behavior.[9,10] Health care providers who are nonsmokers were twice as likely as those who smoke to provide consistent cessation services to their patients.[10] Compared with providers who have not successfully quit, providers who have been successful are aware of the consequences and challenges of quitting and were more effective helping their patients.[11]

The projected increase in health care employment, coupled with the integral role that health care providers play in helping individuals to quit smoking, and the high smoking prevalences among workers in certain health care occupation groups imply a need to better understand the smoking patterns in this sector.[2,9] Using the 2008 to 2012 National Health Interview Survey (NHIS) data, we estimated current smoking prevalence among adults working in the health care and social assistance sector and examined the demographic, socioeconomic characteristics, and smoking behavior of current smokers in this sector.

METHODS

Data Source

The NHIS is a cross-sectional survey conducted continuously since 1957.[12] Data are collected annually from a nationally representative sample of the noninstitutionalized US population age at least 18 years through in-person interview. Sample weights are used to account for the complex sample design (including nonresponse and poststratification). Survey response rates ranged from 62.6% in 2008 to 62.2% in 2012. The 2008 to 2012 NHIS was approved by the Research Ethics Review Board of the National Center for Health Statistics.

Definitions

We analyzed NHIS data collected from 2008 to 2012 for respondents age at least 18 years who were currently working in the health care and social assistance sector. Respondents were categorized as currently working if, in the week prior to the interview, they were "working at a job or business," "with a job or business but not at work," or "working, but not for pay, at a family-owned job or business." The National Center for Health Statistics codes used to identify workers in the health care and social assistance sector included major

industry code 16 and the four industries within the sector as follows: (1) ambulatory health care services (code 65), (2) hospitals (code 66), (3) nursing and residential care facilities (code 67), and (4) social assistance (code 68).[12] To improve estimate reliability, we collapsed 93 occupations into 21 groups based on the NHIS occupation groupings (Table 1). Occupations were grouped if their sample size was less than 45 or if the relative standard error for the estimated number of workers was more than 30%.

We classified current smokers as respondents who reported having smoked at least 100 cigarettes in their lifetime and reported smoking every day or someday at the time of interview. Former smokers were respondents who reported having smoked at least 100 cigarettes during their lifetime and currently did not smoke. Never smokers were respondents who had smoked less than 100 cigarettes during their lifetime. We defined quit ratio as the ratio of former smokers to ever smokers.

Self-rated physical health was assessed using the following question: “Would you say your health in general is excellent, very good, good, fair, or poor?” Responses were grouped into two categories as follows: good health (ie, “excellent” or “very good” or “good”) and poor health (ie, “fair” or “poor”). Current emotional health was assessed based on responses to following six questions: “During the past 30 days did you feel… sad, nervous, restless or fidgety, hopeless, worthless or that everything was an effort all/most/some/a little of the time?” Responses were grouped into following two categories: “good” that was a “no” response to all emotional health-related items and “poor” that was a “yes” response to any of the emotional health-related items.

Chronic obstructive pulmonary disease (COPD) was defined based on a positive response to at least one of the following two questions: “Have you ever been told by a doctor or other health professional that you had emphysema?” and “During the past 12 months, have you been told by a doctor or other health professional that you had chronic bronchitis?” Respondents were considered to have heart disease, stroke, or cancer if they reported ever being told by a doctor or other health professional that they had such a condition. Respondents with current asthma were those who reported a lifetime asthma diagnosis and still had asthma.

Statistical Analysis

For analyses, we used SAS software version 9.2 (SAS Institute Inc, Cary, NC) and SUDAAN version 10.0.1 (Research Triangle Institute, Research Triangle Park, NC). We aggregated 5 years (2008 to 2012) of NHIS data to improve precision and reliability of the estimates and weighted the data to represent the population of all adults working in the health care and social assistance sector. Smoking prevalences (annual average) with corresponding 95% confidence intervals and total numbers of workers were estimated for each industry and occupation. We used separate multivariable logistic regressions to examine associations between current smoking and health outcomes. Adjusted smoking prevalence ratios (PRs) were calculated for each occupation using multilog procedure in SUDAAN. PRs were adjusted for age, race, sex and education based on previous studies.[13–15] For all analyses, the referent group was workers in all other health care and social assistance sector occupations combined. All tests were two-sided, and differences

were considered significant at $P < 0.05$. Prevalence estimates with relative standard error more than 30% (relative standard error, calculated as standard error of the estimate divided by the estimate) were considered unreliable and are not reported.

RESULTS

During 2008 to 2012, of the estimated 141 million (annual average) working adults, 18.9 million (13.6%) worked in the health care and social assistance sector; their median age was 42.3 years (range: 18 to 85 years), 78.9% were women, 66.4% were non-Hispanic whites, 75.9% had greater than a high school degree, 57.9 had income greater than or equal to $35,000, and 87.9% had health insurance. Compared with men, a significantly higher proportion of women had less than high school education (17.8% vs 25.5%: $P < 0.001$) (Table 1).

Overall, 16.0% of the health care and social assistance sector workers were current smokers. Smoking prevalence was higher in women than men (16.9% vs 12.6%: $P < 0.05$). Highest prevalence was among workers age 25 to 44 years (17.7%); non-Hispanic whites (17.9%); those with high school education or less (24.4%); those with family income less than $35,000 (19.5%); and those with no health insurance (28.5%) (Table 1).

Compared with men and across all examined demographic subgroups, women had lower quit ratios (49.4%, Table 2). The average number of cigarettes smoked and pack years smoked did not differ between men and women (Table 2).

Smoking prevalence in all four health care industries failed to meet the Healthy People 2020 goal (12% or less). Workers in nursing and residential care facilities industry had highest prevalence of smoking (26.9%), highest average number of cigarettes smoked per day (n = 13.0), and significantly lower quit ratio (34.5%). Nursing and residential care facilities workers were significantly more likely to be current smokers as compared with all other health care workers PR = 1.65, $P < 0.05$) (Table 3).

Of the 21 occupation groups, workers in 15 occupations had smoking prevalences higher than the Healthy People 2020 goal (Table 3). Highest smoking prevalences were among workers in material recording, scheduling, dispatching, and distributing (34.7%) and in nursing, psychiatry, and home health aides (27.0%) occupations. Quit ratio was lowest among workers in nursing, psychiatry, and among home health aides (33.4%) occupation. The average number of cigarettes smoked per day (12.4) was highest among management workers.

After adjusting for age, race, sex, and education, health care workers who currently smoke had significantly higher odds of having poor physical health, poor emotional health, COPD, current asthma, heart disease, cancer, and chronic diseases than health care workers who were nonsmokers (Table 4).

As compared with nonsmokers, workers who currently smoke in ambulatory health care services and nursing and residential care facilities industry, and workers in personal care services and nursing, psychiatric, and home health aide’s occupations had higher odds of

both self-rated poor physical/emotional health and self-reported physician diagnosis of one or more chronic diseases (Table 5).

DISCUSSION

Among all workers in the health care and social assistance sector, smoking prevalence was highest among workers age 25 to 44 years, those with a high school education or less, income less than $35,000, and no health insurance. Our findings are consistent with previous studies examining smoking patterns among the working population.[14,15]

The results from this study indicate that compared with male health care workers, a larger proportion of women were current smokers. This differs from the US working population where men had higher smoking prevalences than women.[16] This may be explained, in part, by the employment structure in the health care and social assistance sector. We found that approximately 80% of the health care workers were women, almost a third of them had no health insurance, and 20% had less than a high school education. Compared with male smokers, women who smoked had lower quit ratios, higher cigarette consumption, and higher intensity of smoking (pack years). Furthermore, women smokers were more likely than men smokers to have less than or equal to a high school education, lower income, and no health insurance. This is consistent with previous studies showing that smoking prevalence is greater among low socioeconomic status (SES) workers.[14,15] Women who smoke are more likely than men who smoke to have poorer physical and mental health and higher prevalences of COPD, cancer, and asthma.[16] Thus, workplace cessation interventions targeting women may be particularly beneficial.

Compared with all other health care and social assistance sector workers, workers in nursing, psychiatric, and home health aides (ie, health care support occupations, eg, home health aide, nursing assistants, psychiatric aide, etc) and material recording, scheduling, dispatching, and distributing (ie, ambulance dispatchers, couriers and messengers, record clerks, etc) occupations had the highest odds of smoking and lowest quit ratios. Of the current smokers in nursing, psychiatric, and home health aides facilities, approximately 45% had less than a high school degree, 53% had lower income (<$35,000), and 21% had no health insurance (data not shown). Education, income, and occupation class are important predictors of smoking.[15] The effect of low SES and specific work factors on smoking has been previously reported. [14,15,17,18] Longer work hours (>18 hours), psychological pressures, lack of understanding and support from colleagues, low motivation, and lack of cessation programs have been implicated as possible explanations for higher smoking behavior and lower quit rates among workers in nursing and other health care support occupations.[17,18]

Our findings that smoking prevalence among workers in health diagnosing and treating physicians occupations (ie, physicians, surgeons, registered nurses, dentists, and podiatrists) was lower than the prevalence in all other workers in health care and social assistance sector are consistent with previous studies showing that physicians are less likely to smoke than the general population.[3–6] We also found that their quit ratio was greater than 60%. Olive et al reported that with the implementation of smoke-free workplace policies in hospital settings,

a decline in smoking, a decrease in cigarette consumption, and increased quit attempts were observed among workers in health care settings.[19]

We observed differences in self-reported health between smokers and nonsmokers by industry and occupation. Poor physical/emotional health was more likely to be reported by adult smokers who work in ambulatory health care services industry and in transportation and material moving operations, management, health diagnosing and treating physicians, and personal care services occupations. Compared with never smokers, smokers working in the nursing and residential care facilities industry and nursing, psychiatric, and home health aides and personal care services occupations were more likely to report one or more chronic health conditions. This suggests opportunities to improve the overall health status and well-being by intervening on smoking in this population.

Our results show that workers in certain health care sector occupations continue to have high smoking prevalences. Industry-and occupation-specific studies are needed to better understand the reasons for the high prevalence of smoking. This will facilitate in designing tailored cessation programs to further reduce smoking and improve overall health among workers.

This study has at least three limitations. First, cross-sectional analysis of NHIS data does not assess causal inferences between smoking and health outcomes or the long-term health effects of smoking. Second, smoking behavior was self-reported without biochemical validation; however, previous studies have shown that self-reports are reliable estimates of actual smoking behavior in population-based surveys.[20] Furthermore, health care workers' knowledge of adverse health effects associated with tobacco use and social disapproval of smoking may cause them to not report their smoking habit.[3] Finally, although 5 years of NHIS data were combined and occupational categories were regrouped, sample sizes for certain occupations remained small.

Despite overall declines in smoking among US health care workers, in some occupations smoking prevalence remains high, underscoring the need for targeted interventions. Smoking prevalences were higher among women and among those in the low SES (education, income). Tailored interventions can contribute to reducing inequalities and have been successful both at individual (eg, behavioral therapy, incentives to quit etc) and population level (increase price of cigarettes, mass media, cessation support etc).[15] Continued efforts to identify barriers to quitting, provide social support, provide financial incentives, educate, create tobacco-free hospital environments, support tobacco workplace dependence treatment, integrate tobacco cessation programs with health promotion activities, and include cessation interventions for current smokers during their professional training could greatly assist in further reducing smoking in health care workers.[15,21,22]

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TABLE 1

Demographic Characteristics of the Study Population and Current Cigarette Smoking Prevalence by Sex

	Estimated Population in 1000s (%)			Current Cigarette Smoking Prevalence*		
	Total No. (%)	**Men No. (%)**	**Women No. (%)**	**Total % (95% CI)**	**Men % (95% CI)**	**Women % (95% CI)**
Age group, yrs						
18–24	1,980 (10.5)	400 (10.0)	1,580 (10.6)	17.1 (13.7–20.5)	19.6 (10.4–28.8)	16.4 (12.9–19.9)
25–44	8,488 (45.0)	1,759 (44.1)	6,729 (45.2)	17.7 (16.4–19.0)	14.0 (11.4–16.6)	18.6 (17.2–20.1)
45–64	7,601 (40.3)	1,633 (40.0)	5,968 (40.1)	14.7 (13.4–15.9)	10.3 (8.1–12.4)	15.9 (14.4–17.4)
≥65	813 (4.3)	200 (5.0)	613 (4.1)	7.7 (5.2–10.2)	*	8.8 (5.7–11.9)
Race/Ethnicity						
Hispanic	2,019 (10.7)	459 (11.5)	1,560 (10.5)	11.0 (9.2–12.8)	10.9 (7.1–14.8)	11.0 (9.0–13.0)
Non-Hispanic white	12,530 (66.4)	2,582 (64.7)	9,948 (66.8)	17.9 (16.7–19.1)	12.2 (9.7–14.7)	19.4 (18.0–20.7)
Non-Hispanic black	3,136 (16.6)	613 (15.4)	2,522 (16.9)	14.3 (12.4–16.2)	16.7 (12.5–21.0)	13.7 (11.5–15.9)
Other	1,197 (6.3)	338 (8.5)	859 (5.8)	8.9 (6.1–11.9)	9.7 (5.6–13.7)	8.1 (4.4–11.9)
Education						
≤ High school	4,500 (23.8)	709 (17.8)	3,791 (25.5)	24.4 (22.4–24.5)	24.3 (16.6–27.9)	24.8 (22.6–27.1)
> High school	14,339 (75.9)	3,279 (82.2)	11,061 (74.5)	13.3 (12.4–14.2)	10.4 (8.8–12.1)	14.2 (13.1–15.2)
Unknown	42 (0.3)	4 (0.1)	38 (0.2)	†	†	†
Income						
$0–$34,999	7,065 (37.6)	1,378 (34.6)	5,687 (38.4)	19.5 (18.1–20.8)	16.2 (13.2–19.3)	20.3 (18.8–21.8)
$35,000–$74,999	4,804 (25.5)	875 (22.0)	3,929 (26.5)	18.2 (16.4–20.0)	16.9 (13.0–20.7)	18.5 (16.6–20.3)
≥$75,000	6,089 (32.4)	1,533 (38.5)	4,556 (30.7)	10.8 (9.2–12.4)	7.1 (4.6–9.5)	12.0 (10.1–14.0)
Unknown	853 (4.5)	198 (5.0)	655 (4.4)	11.9 (8.3–15.5)	†	†
Health insurance						
Insured	16,577 (87.8)	3,596 (90.1)	12,981 (87.2)	14.3 (13.3–15.2)	11.1 (9.2–12.9)	15.1 (14.1–16.2)
Not insured	2,276 (12.1)	388 (9.7)	1,888 (12.7)	28.5 (25.5–31.5)	26.3 (19.8–32.8)	29.0 (25.7–32.2)
Unknown	29 (0.2)	8 (0.2)	21 (0.1)	†	†	†
Total	18,882 (100)	3,992 (100)	14,890 (100)	16.0 (15.1–16.8)	12.6 (10.8–14.4)	16.9 (15.9–17.9)

CI, confidence interval.

*Working adults with missing smoking information (total, *n* = 89,728; men, *n* = 21,359 and women, *n* = 68,368) was excluded when calculating prevalence.

†Estimates with a relative standard error >30% was not calculated as they do not meet the standards of reliability.

TABLE 2

Smoking Patterns Among Current Smokers by Sex

Characteristics	Men			Women		
	Nos. of Cigarettes Per Day Mean (95% CI)	Pack Years* Mean (95% CI)	Quit Ratio† % (95% CI)	Nos. of Cigarettes Per Day Mean (95% CI)	Pack Years* Mean (95% CI)	Quit Ratio† % (95% CI)
Age group, yrs						
18–24	9.9 (7.5–12.2)	2.4 (1.5–3.4)	‡	8.8 (7.4–10.2)	2.8 (2.2–3.3)	27.9 (20.0–35.8)
25–44	9.6 (8.3–10.9)	7.8 (6.3–9.2)	55.9 (48.6–63.2)	10.2 (9.4–10.9)	8.9 (8.2–9.7)	41.9 (38.5–45.2)
45–64	13.4 (10.8–16.0)	22.9 (18.7–27.0)	73.7 (68.6–78.9)	12.5 (11.6–13.4)	20.7 (19.1–22.3)	57.3 (54.1–60.4)
≥65	10.5 (5.9–15.1)	28.9 (16.5–41.4)	90.3 (83.2–97.5)	10.9 (7.4–14.4)	27.5 (18.2–36.9)	77.3 (70.0–84.6)
Race/Ethnicity						
Hispanic	4.6 (3.5–5.8)	3.1 (2.0–4.1)	68.9 (58.4–79.5)	6.3 (5.3–7.3)	6.5 (5.0–7.9)	47.1 (40.4–53.8)
Non-Hispanic white	12.9 (11.2–14.7)	14.7(11.6–17.7)	66.1 (60.0–72.2)	11.8 (11.2–12.5)	14.5 (13.6–15.5)	51.0 (48.3–53.7)
Non-Hispanic black	8.6 (6.4–10.7)	9.2 (6.1–12.3)	46.6 (36.2–57.1)	9.1 (8.2–10.0)	10.1 (8.7–11.5)	40.5 (34.6–46.4)
Other	7.8 (4.3–11.4)	12.6 (3.7–21.4)	63.6 (50.0–77.2)	7.1 (4.4–9.8)	6.4 (3.6–9.1)	47.1 (32.5–61.7)
Education						
≤ High school	10.8 (9.2–12.5)	12.3 (9.1–15.5)	53.6 (44.3–63.0)	12.0 (11.2–12.9)	14.7 (13.4–16.1)	36.6 (32.7–40.6)
> High school	11.0 (9.4–12.7)	12.5 (9.8–15.1)	67.0 (62.3–71.6)	10.3 (9.6–10.9)	12.1 (11.1–13.0)	54.9 (52.4–57.4)
Unknown	‡	‡	‡	‡		
Income						
$0–$34,999	11.4 (9.2–13.6)	12.5 (9.2–15.8)	55.8 (48.6–62.9)	11.0 (10.4–11.6)	13.1 (12.0–14.2)	41.7 (38.5–44.8)
$35,000–$74,999	10.5 (8.8–12.3)	11.4 (8.8–14.0)	60.1 (52.0–68.3)	11.5 (10.5–12.6)	14.5 (13.0–16.0)	46.5 (42.5–50.5)
≥$75,000	10.4 (8.2–12.6)	13.4 (8.0–18.8)	75.5 (67.9–83.2)	9.9 (8.7–11.2)	11.3 (9.7–12.9)	61.3 (56.6–65.9)
Unknown	11.7 (7.4–16.0)	12.7 (6.6–18.8)	62.8 (43.1–82.5)	11.2 (9.3–13.2)	13.1 (9.9–16.3)	59.2 (48.1–70.2)
Health insurance						
Insured	11.0 (9.6–12.5)	9.7 (6.2–13.2)	66.8 (61.8–71.8)	10.7 (10.1–11.3)	13.5 (11.8–15.2)	53.4 (50.9–55.9)
Not insured	10.6 (8.4–12.8)	13.1 (10.5–15.6)	40.6 (29.1–52.0	11.7 (10.7–12.8)	13.0 (12.1–13.9)	26.3 (21.4–31.1)
Unknown	‡	‡	‡	‡	‡	‡
Total	10.9 (9.7–12.2)	9.7 (6.2–13.2)	63.6 (59.0–68.1	10.9 (10.4–11.5)	13.1 (10.5–15.6)	49.4 (47.2–51.7)

CI, confidence interval.

*Pack years = ([number of cigarettes per day/20] × number of years smoked).

† Quit ratio = Ever smokers/former smokers

‡ Estimates with a relative standard error >30% was not calculated as they do not meet the standards of reliability.

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TABLE 3

Smoking Prevalence and Smoking Patterns by Industry and Occupation

Health Care and Social Assistance	Estimated Population in 1000s	Smoking Prevalence % (95% CI)	Average Number of Cigarettes Per Day *n* (95% CI)	Quit Ratio* % (95% CI)	Prevalence Ratio† PR† (95% CI)
Industry sector					
Ambulatory health care services	7,179	14.8 (13.4–16.1)	10.1 (9.4–10.7)	55.6 (52.3–58.8)	0.93 (0.84–1.04)
Hospitals	5,796	13.2 (11.7–14.6)	9.5 (8.7–10.4)	59.2 (55.5–63.0)	0.85 (0.74–0.97)
Nursing and residential care facilities	2,553	26.9 (24.1–29.7)	13.0 (12.0–14.1)	34.5 (30.1–38.9)	1.65‡ (1.44–1.88)
Social assistance Occupation group	3,353	15.1 (12.9–17.4)	10.9 (9.8–12.1)	51.3 (46.0–56.5)	0.85 (0.72–1.00)
Health diagnosing and treating physicians	4,338	10.5 (9.0–12.0)	9.9 (8.8–11.1)	63.0 (58.8–67.2)	0.76‡ (0.65–0.89)
Health technologists	1,804	16.0 (13.3–18.7)	11.7 (10.5–12.9)	52.0 (45.8–58.3)	1.10 (0.93–1.30)
Nursing, psychiatric, and home health aides	1,956	27.0 (23.9–30.1)	11.9 (10.8–13.0)	33.4 (28.6–38.3)	1.51‡ (1.32–1.74)
Occupational and physical therapist and other support	988	19.7 (15.2–24.2)	9.7 (7.8–11.6)	45.3 (35.9–54.7)	1.10 (0.87–1.40)
Management	1,198	11.4 (8.7–14.1)	12.4 (9.2–15.5)	68.2 (61.0–75.3)	0.86 (0.68–1.09)
Business and financial	326	10.6 (5.9–15.2)	10.1 (7.6–12.7)	71.7 (59.8–83.7)	0.69 (0.44–1.09)
Computer and mathematical	171	#	9.8 (6.6–13.1)	73.6 (55.7–91.5)	0.67 (0.33–1.35)
Life, physical, and social science	298	#	6.6 (3.6–9.5)	79.6 (64.9–94.4)	0.46 (0.22–0.96)
Counselors social workers	1,034	17.1 (13.4–20.8)	8.9 (7.4–12.3)	50.6 (42.6–58.6)	1.18 (0.95–1.47)
Education, training, and library	722	13.3 (9.2–17.4)	8.5 (6.6–10.4)	50.2 (38.3–62.2)	0.75 (0.55–1.03)
Protective services	79	#	8.1 (2.1–14.0)	49.9 (23.3–76.5)	0.90 (0.41–1.96)
Food preparation and serving related	432	21.6 (14.7–28.5)	10.9 (8.5–13.4)	35.3 (23.8–46.8)	1.07 (0.76–1.51)
Building and grounds cleaning	488	19.1 (14.0–24.2)	11.1 (9.5–12.6)	49.1 (38.1–60.1)	0.95 (0.71–1.28)
Personal care service	1,782	19.7 (16.6–22.8)	11.3 (10.0–12.4)	41.2 (34.1–48.3)	1.02 (0.86–1.22)
Supervisors, office and administrative support	203	9.2‡ (2.7–15.7)	9.2 (6.2–12.2)	76.2 (61.9–90.6)	0.59 (0.30–1.18)
Financial clerks	392	18.2 (12.5–23.9)	11.5 (9.2–13.9)	52.8 (41.5–64.2)	1.09 (0.79–1.50)
Information and record clerk	878	13.9 (9.8–18.0)	7.7 (6.1–9.3)	55.7 (45.6–65.8)	0.80 (0.59–1.08)
Material recording, scheduling, dispatching, and distributing	121	34.7 (15.6–53.7)	11.4 (8.3–14.6)	#	2.07‡ (1.27–3.37)
Secretaries and administrative assistants and other office support	1,019	16.0 (12.1–19.9)	11.8 (9.1–14.5)	52.9 (44.2–61.5)	0.96 (0.75–1.23)
Transportation and material moving operation	149	20.2 (10.0–30.3)	11.0 (7.0–15.1)	53.3 (33.8–72.7)	1.28 (0.76–2.18)

Health Care and Social Assistance	Estimated Population in 1000s	Smoking Prevalence % (95% CI)	Average Number of Cigarettes Per Day *n* (95% CI)	Quit Ratio* % (95% CI)	Prevalence Ratio† PR† (95% CI)
All other health care	469	16.8 (12.0–21.5)	12.2 (10.0–14.4)	60.5 (50.4–70.6)	1.04 (0.78–1.40)
Unknown	36	#	#	#	#

CI, confidence interval; PR, prevalence ratio.

*PRs adjusted for age, race, sex, and education. Reference group was workers in all other industries/occupations combined.

†Quit ratio = ever smokers/former smokers.

‡Indicate the higher odds of being a current smoker among workers in the specific health care industry/occupation as compared with the odds of being a current smoker among all other health care workers combined, $P < 0.05$.

#Estimates with a relative standard error >30% was not calculated as they do not meet the standards of reliability.

TABLE 4

Self-Reported Health by Smoking Status

Self-Reported Health	Current Smokers Prevalence (95% CI)	Nonsmokers Prevalence (95% CI)	Current vs Nonsmokers PR* (95% CI)
Physical health (poor)	9.6 (8.0–11.1)	5.4 (4.6–6.0)	1.6† (1.3–2.0)
Emotional health (poor)	60.1 (55.5–64.7)	53.6 (50.8–56.0)	1.1† (1.0–1.2)
COPD	6.8 (5.5–8.1)	2.9 (2.5–3.3)	2.3† (1.8–2.9)
Current asthma	10.2 (8.7–12.0)	7.8 (7.1–8.6)	1.3† (1.1–1.6)
Heart disease	5.8 (4.7–7.0)	5.0 (4.4–5.6)	1.3† (1.1–1.4)
Any cancer	6.9 (5.5–8.3)	5.1 (4.6–5.7)	1.5† (1.2–1.9)
Stroke	1.4 (0.8–2.0)	1.0 (0.7–1.2)	1.5 (0.8–2.7)
Chronic health#	24.3 (21.9–26.7)	18.6 (17.6–19.6)	1.5† (1.3–1.7)

CI, confidence interval; COPD, chronic obstructive pulmonary disease; PR, prevalence ratio.

*PRs adjusted for age, race, sex, and education. Reference group is nonsmokers.

†Indicate the higher odds of having poor self-reported health among current smokers as compared with the odds among nonsmokers, $P < 0.05$.

#Self-reported physician diagnosis of COPD or heart disease/condition or stroke or current asthma or any cancer.

TABLE 5

Self-Reported Chronic Health and Health Status Among Current Smokers by Industry and Occupation

Industry/Occupation	Estimated Current Smokers in 1000s	Poor Physical/ Emotional Health* PR‡ (95% CI)	Chronic Health† PR‡ (95% CI)
Industry			
Ambulatory health care services	1,055	1.8# (1.5–2.1)	1.3# (1.0–1.5)
Hospitals	759	1.7# (1.3–2.2)	1.2 (1.0–1.6)
Nursing and residential care facilities	682	1.3# (1.0–1.7)	1.6# (1.3–2.1)
Social assistance	506	1.6# (1.2–2.0)	1.2 (0.9–1.6)
Occupation			
Health diagnosing and treating physicians	452	2.0# (1.4–2.9)	1.1 (0.8–1.6)
Health technologists	288	1.3 (0.8–1.9)	1.3 (0.9–1.8)
Nursing, psychiatric, and home health aides	524	1.6# (1.2–2.0)	1.8# (1.3–2.4)
Occupational and physical therapist and other support	192	1.5 (0.9–2.4)	1.5 (0.9–2.4)
Management	136	2.1# (1.4–3.4)	1.3 (0.8–2.0)
Business and financial	34	1.4 (0.7–2.9)	1.3 (0.4–4.0)
Computer and mathematical	15	§	§
Life, physical, and social science	17	§	§
Counselors social workers	177	1.2 (0.8–1.9)	1.0 (0.6–1.7)
Education, training, and library	96	1.0 (0.6–1.9)	1.0 (0.5–2.0)
Protective services	11	§	§
Food preparation and serving related	93	1.2 (0.8–1.7)	1.1 (0.6–2.2)
Building and grounds cleaning	93	1.2 (0.7–2.1)	1.8 (0.9–3.4)
Personal care service	350	1.9# (1.5–2.3)	1.5# (1.1–2.0)
Supervisors, office and administrative support	19	0.4 (0.1–2.5)	0.6 (0.2–2.4)
Financial clerks	71	1.6 (0.8–3.1)	0.9 (0.4–1.8)
Information and record clerk	121	1.5 (0.9–2.5)	1.3 (0.7–2.4)
Material recording, scheduling, dispatching, and distributing	42	1.2 (0.4–3.7)	0.6 (0.4–2.6)
Secretaries and administrative assistants and other office support	162	1.3 (0.7–2.3)	1.0 (0.6–1.6)
Transportation and material moving operation	30	3.9# (1.6–9.9)	0.7 (0.2–2.1)
All other health care	78	1.2 (0.7–2.3)	2.2# (1.3–3.7)
Total health care	3,001	1.6# (1.4–1.8)	1.5# (1.3–1.7)

CI, confidence interval; COPD, chronic obstructive pulmonary disease; PR, prevalence ratio.

*Self-reported poor physical/emotional health.

†Self-reported physician diagnosis of COPD or heart disease/condition or stroke or current asthma or any cancer.

‡PRs adjusted for age, race, sex, and education. Reference group is nonsmokers.

#Indicate the higher odds of having poor self-reported health among current smokers as compared with the odds among nonsmokers, $P < 0.05$.

[§]Estimates with a relative standard error >30% was not calculated as they do not meet the standards of reliability.